INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/010630

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A23G9/02 C07K14/415

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A23G C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, FSTA, BIOSIS, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 158 866 A (UNILEVER PLC ;UNILEVER NV (NL)) 5 December 2001 (2001-12-05) paragraphs '0012! - '0018!, '0024! - '0026!, '0030! - '0033!, '0040! - '0042!, '0085!, '0089!, '0090!, '0093! examples 5-10 claims	1-13
X	US 5 676 985 A (WU YALING ET AL) 14 October 1997 (1997-10-14) example 3	1-13
A	WO 98/04146 A (UNILEVER PLC ;UNILEVER NV (NL)) 5 February 1998 (1998-02-05) claims; examples I,II	

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 December 2004	29/12/2004

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Popa, M

Form PCT/ISA/210 (second sheet) (January 2004)

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 200 622 B1 (HODDLE ANDREW ET AL) 13 March 2001 (2001-03-13) example I	
A	WO 98/41109 A (UNILEVER PLC ;UNILEVER NV (NL)) 24 September 1998 (1998-09-24) example II	
A	GB 2 328 136 A (UNILEVER PLC) 17 February 1999 (1999-02-17) examples	
A	FEENEY R.E., YEH Y.: "Antifreeze proteins: Current status and possible food uses" TRENDS IN FOOD SCIENCE & TECHNOLOGY, vol. 9, no. 3, March 1998 (1998-03), pages 102-106, XP002280668 ISSN: 0924-2244 page 104, right-hand column	
A	ANTSON A A ET AL: "Understanding the mechanism of ice binding by type III antifreeze proteins" JOURNAL OF MOLECULAR BIOLOGY, LONDON, GB, vol. 305, no. 4, 26 January 2001 (2001-01-26), pages 875-889, XP004470922 ISSN: 0022-2836 the whole document	
A	GRIFFITH M ET AL: "Antifreeze proteins and their potential use in frozen foods" BIOTECHNOLOGY ADVANCES, ELSEVIER PUBLISHING, BARKING, GB, vol. 13, no. 3, 1995, pages 375-402, XP004045399 ISSN: 0734-9750 the whole document	

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: -

Present claims 1-7 and 10-13 relate to an extremely large number of possible proteins. In fact, the claims contain so many possibilities that a lack of clarity (and conciseness) within the meaning of Article 84 EPC arises to such an extent as to render a meaningful search of the claims impossible. Consequently, the search has been restricted to the compounds found in the features of the dependent claims 8 and 9, namely Type III ISP of fish type and HPLC-12, respectively.

The definition of ISP/AFP is a broad one and covers EVERY protein that has at least one of the required properties, namely: thermal hysteresis, inhibition of ice recrystallisation, control of ice crystal shape and interaction with ice nucleators. The definitions can be found in WO 98/04146 (Unilever) and XP4045399 (Griffith).

The examples provided are irrelevant as they do not provide the essential information (Art. 5 PCT) and the only part of the specification that can support the claims could be found in page 5 lines 9-14.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

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Information on patent family members

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